THE OCEAN FOUNDATION

COASTAL COORDINATION PROGRAM

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Re: Comments on the **inadequacies** of the "Draft Programmatic Environmental Assessment To Evaluate Potential Environmental Effects of Well Stimulation Treatments on the Pacific Outer Continental Shelf" [16761700D2 ET1EX0000.PEB000 EEAA000000] pursuant to FR Doc. 2016–03600 Filed 2–19–16, and in **support of Alternative 4: No Action**.

To Whom It May Concern:

Thank you for this opportunity to submit comments on the "Draft Programmatic Environmental Assessment To Evaluate Potential Environmental Effects of Well Stimulation Treatments on the Pacific Outer Continental Shelf" (hereinafter referred to as the "EA").

As the agency is aware, the practices described in the "Draft Programmatic Environmental Assessment To Evaluate Potential Environmental Effects of Well Stimulation Treatments on the Pacific Outer Continental Shelf" have been determined to have been occurring illegally off the coast of Southern California for some time, without the requisite notice to the State of California, the California State Coastal Commission, nor to affected local agencies. Belatedly and after-the-fact, the Bureau of Safety and Environmental Enforcement (BSEE) and Bureau of Ocean Energy Management (BOEM) now propose to allow the use of selected well stimulation treatments (WSTs) on the 43 current active leases and 23 operating platforms on the Southern California Outer Continental Shelf (OCS), based on the flawed EA which purports to evaluate the potential environmental impacts of the proposed approval of the use of WSTs on the platforms currently in operation.

Our comments point out the inadequacies of the EA, and ultimately support the adoption of "Alternative 4: No Action—Allow No Use of WSTs". Under this alternative, none of the four WSTs identified for the proposed action would be approved for use in any current or future wells on the 23 platforms associated with

24 active lease areas on the Southern California OCS. This alternative would eliminate all effects of the use of WSTs.

Our comments also incorporate, by reference, into the present record cited above at [16761700D2 ET1EX0000.PEB000 EEAA000000], the full text of the recently-released U.S. Government Accountability Office (GAO) report that finds that the Bureau of Safety and Environmental Enforcement (BSEE) continues to be characterized by a lack of follow-though in the monitoring of oil and gas companies' safety management systems, that BSEE has ongoing difficulties hiring and training safety inspectors, and there is an unexplained failure of BSEE to staff its environmental enforcement division, see:
http://gao.gov/products/GAO-16-245
and:
http://www.wwltv.com/news/local/investigations/federal-watchdog-blasts-offshore-safety-agency/77951358
and:
http://www.12news.com/news/nation-now/report-blasts-oilrig-safety-agencys-effectiveness/78362888

The above-referenced recent GAO report clearly discloses mission-critical lapses at BSEE that must be fully resolved prior to resumption of WST activity offshore California or anywhere else on the OCS.

The EA on WSTs is flawed for the reasons noted herein, including but not limited to, the following inadequacies:

1) The cursory EA that has been submitted is entirely inadequate to address the broad range of issues raised by offshore hydraulic fracturing and other well-stimulation techniques proposed for implementation in California's sensitive coastal waters. The draft EA fails to substantiate its vague reassurances and generalizations with documented facts, contains no baseline data, and provides an inadequate range of project alternatives and/or mitigations. No public input was solicited by BSEE nor by the industry before the unwarranted initiation of WST practices offshore California, nor were appropriate state and local agencies notified in a timely fashion as required by statute.

2) The EA fails to meet the requirements of the National Environmental Policy Act (NEPA) and fails to propose relevant mitigation measures, fails to provide a full range of available alternatives, and disregards the cumulative biological implications of the types of chemical compounds being proposed for routine use in the marine environment.

3) The EA also fails to consider newly-emerging evidence related to induced geo-instability associated with well stimulation, including the potential of the associated WST practices to induce unstoppable artificial oil seeps into marine waters, and the complex geotechnical interaction of well stimulation techniques in earthquake-prone locations.

4) The defined activities being proposed in the EA are not inclusive of the full range of proposed techniques, i.e.; the WSTs evaluated in this EA only include fracturing and non-fracturing treatments which may be used for enhancing production from existing or new wells where formation permeability and decreasing reservoir pressure are limiting oil recovery, and fail to address adequately address other associated practices.

5) This EA purports to arbitrarily adopt the definitions that are found in State of California Senate Bill No. 4 (SB-4) "Oil and Gas: Well Stimulation", but the SB-4 definitions being proposed for application to WST activities occurring in State waters - and supposedly accessing the same formations as those being accessed by offshore platforms on the 43 active Federal lease areas – are known to substantially differ in scale, chemistry, and activity from those being used on land in California. It is inappropriate

for the federal agencies to adopt the SB-4 definitions (from a State of California bill) because to do so does not allow for straightforward comparisons of WST applications in Federal and State offshore operations, nor does it support even the cursory analysis of the cumulative effects of all offshore operations inadequately evaluated in the present EA.

6) This EA inappropriately attempts to further the pretext that regulators can readily distinguish between the effects of "fracturing WSTs", in which WST fluids are injected at pressures required to fracture the formation (i.e., greater than the formation fracture pressure), and "non-fracturing WSTs", in which the WST fluid is injected at less than the pressure required to hydraulically fracture the formation. Diagnostic fracture injection tests (DFITs), hydraulic fracturing, and acid fracturing typify the fracturing WSTs that are inadequately analyzed in this EA. Matrix acidizing represents the only non-fracturing WST analyzed and the comparative discussion is inadequate. This EA, on the pretext of distinguishing between "fracturing WSTs," in which WST fluids are injected at pressures required to fracture the formation (i.e., greater than the formation fracture pressure), and "non-fracturing WSTs", in which the WST fluid is injected at less than the pressure required to hydraulically fracture the formation, does not consider the commonalities and differences of the chemicals utilized in each of these procedures. The EA unnecessarily limits itself to diagnostic fracture injection tests (DFITs), hydraulic fracturing, and acid fracturing and these are analyzed to a very minimal extent. Unfortunately, matrix acidizing is the only non-fracturing WST analyzed and this set of chemical compounds and their impacts has not been adequately evaluated in the EA.

7) The Diagnostic Fracture Injection Test (DFIT), used to estimate key reservoir properties and parameters needed to optimize a main fracture job, often involves the injection of up to 100 barrels of fracturing fluid at pressures high enough to initiate a fracture, utilizing chemical compounds that may not closely resemble the normal conventional fracking fluid mixture. The fluid used in a DFIT may or may not be similar to the fluid that would be used in the main fracture treatment, even though it may have had no proppant added.

8) Hydraulic fracturing itself involves the injection of a fracturing fluid at a pressure (as typically determined by a DFIT) needed to induce fractures within the producing formation, taking three sequential steps: (a) injection of a fracturing fluid without proppant to create fractures which extend out from the well; (b) injection of a slurry of fracturing fluid and proppant; and (c) injection of breakers to reduce the viscosity of the fracturing fluid so that, upon release of pressure, the fracturing fluid is allowed to flow back (the flowback fluid) to the surface platform. Key fluid additives include polymer gels which increase the viscosity of the fluid and allow it to more easily carry proppant into the fractures, crosslinker compounds that help further increase the fluid viscosity, and breaker chemicals which break down the crosslinked polymers and allow them to return more readily to the surface after fracturing is completed. Other additives can be expected to include pH buffers, clay control additives, microbial biocides, and surfactants to aid in fluid recovery. The EA fails to evaluate the relevant anticipated fracking compounds, the toxicity and mutagenic properties of these compounds, nor the composition of the biocides and surfactants that are expected to be utilized. The EA fails to disclose the fate and effects of such materials should a drillstring break or become disconnected as happened recently to a Shell drilling operation offshore Nova Scotia, see: http://www.cbc.ca/beta/news/canada/nova-scotia/shell-offshore-oil-equipment-incident-1.3479164

9) The EA fails to disclose the range of impacts from, nor offer proven mitigations for, the use of acid fracturing. In a process somewhat similar to hydraulic fracturing, but using a proppant to keep fractures open, an acid solution is used to erode channels in the rock walls of the fractures, thereby creating pathways for oil and gas to flow to the well. As with a hydraulic fracturing WST, a pad fluid is first injected to induce fractures in the formation. Next, the acid fracturing fluid is injected at pressures above the formation fracture pressure and allowed to etch the fracture walls. The acid

fracturing fluid is typically gelled, cross-linked, or emulsified to maintain full contact with the fracture walls. Fifteen percent hydrochloric acid (15% HCl) solutions, such as those typically used in carbonate formations like limestone and dolomite, and hydrofluoric acid (HF) solutions and HCl/HF mixtures are used in sandstone and Monterey shale formations and in other more heterogeneous geologic formations, typically at levels of 12% and 3%, respectively. The fracturing fluid typically also includes a variety of additives of undisclosed chemical composition at lower concentrations, such as inhibitors to prevent corrosion of the steel well casing, and sequestering agents to prevent formation of gels or iron precipitation which may clog the pores. The EA does not reveal which chemicals are used and offers no peer-reviewed documentation of the safety of any of the compounds utilized in acid fracturing at the concentrations cited.

10) The EA fails to delineate the actual Project Area, except with a small general map showing no subsea bathymetry or other datasets about the marine environment, and does not describe impacts extending beyond the project area at all.

11) The EA fails to describe WST impacts on air quality, including impacts due to contributions of elevated photochemical ozone from ozone precursor emissions from diesel pumps and support vessels. The EA also fails to discuss impacts or mitigations from the contributions of WST to visibility degradation from emissions of particulate matter nor the contributions of greenhouse gas emissions associated with routine WST activities, either in a per-project sense or in the cumulative sense. The EA fails to describe the temporary effects on air quality from releases of WST fluids and hydrocarbons as a result of the inevitable accidents. The EA fails to mention the impacts from potential emissions during drilling of new injection wells which may be needed under Alternative 3, nor the impacts of injection wells on subsea aquifers or seismicity. The EA fails to delineate and discuss prospective mitigations for water quality degradation, nor does the EA address the potential impacts of routine WST operations on water quality and marine life within the 100-m radius mixing zone defined under the U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) general permit related to WST waste fluids in permitted discharges to the ocean. The EA claims, but does not justify, the assertion that compliance with the provisions of the permit would prevent water quality effects from extending outside the mixing zone. The EA fails to quantify, or suggest cleanup technologies for, potential impacts on water quality from the release of WST fluids or hydrocarbons from potential accidents. The claim in the EA that only "temporary and localized" decreases in water quality may occur as a result of bottom-disturbing activities that can be anticipated to occur under Alternative 3 will not be significant is specious.

12) The EA fails to identify and suggest reliable mitigations for WST impacts on geologic resources and induced seismicity. The EA acknowledges that there is a "small" potential that WSTs may stimulate seismic activity in seismically active areas such as the Santa Barbara Channel and thus result in an increase in seismic hazard in the vicinity of the wells where fracturing WSTs are being implemented, but the EA suggests no mitigations for this impact nor does the EA identify the geographic extent of the impacts of earthquakes that may be reasonably expected to result from the WST activities.

13) While the EA acknowledges that there will likely be resulting impacts from WST on benthic resources (including special status species), it is unacceptable that no practical mitigations are suggested - nor is evidence provided that any kind of prospective mitigations for this impact would be feasible or effective. Potential lethal, sublethal, or displacement impacts on benthic communities following ocean disposal of WST waste fluids, or the accidental release of WST fluids or hydrocarbons from potential accidents, and contamination of Endangered Species Act (ESA)-designated critical habitat with hydrocarbons and WST fluids following an accidental release, are not addressed by the EA. Benthic resources may also be affected by bottom-disturbing activities under Alternative 3, but this is not addressed in the EA.

14) The EA fails to suggest mitigations for impacts of WST activities on marine and coastal fish (including special status species) and essential fish habitat: The EA fails to identify the full range of potential lethal, sublethal, or displacement impacts on fish following ocean disposal of WST waste fluids or the release of WST fluids or hydrocarbons from potential accidents. The EA fails to suggest reasonable mitigation measures for contamination of Essential Fish Habitat (EFH) and ESA-designated critical habitat with hydrocarbons and WST fluids following an accidental release of fracking fluids or formation hydrocarbons. While the EA acknowledges that marine and coastal fish may also be affected, the type and geographic range of anticipated impacts is not estimated and no economic or environmental mitigations are suggested.

15) The EA fails to address impacts of, and mitigations for, WST impacts on marine and coastal birds (including special status species), nor does the EA address potential lethal or sublethal effects following ocean disposal of WST waste fluids or the accidental release of WST fluids or hydrocarbons from potential accidents. Adverse hydrocarbon impacts resulting from the 2015 Refugio oil spill near Santa Barbara should be considered in formulating a response scenario for protection of marine and coastal birds in the Project Area, many of which represent shared public trust resources with the nearby Channel Islands National Marine Sanctuary.

16) The EA fails to fully consider, and offers no mitigations for, WST impacts on marine mammals (including special status species), nor does the EA suggest mitigation strategies for potential lethal or sublethal effects following ocean disposal of WST waste fluids or release of WST fluids and hydrocarbons from potential accidents or vessel strikes. The EA states that marine mammals may also be affected by noise from bottom-disturbing activities that may occur under Alternative 3, but suggests no mitigations for such impacts. Marine mammals in the Project Area should be presumed to include public trust resources associated with the Channel Islands National Marine Sanctuary and several of the adjacent California Marine Life Protection Act marine protected areas.

17) The EA fails to adequately consider impacts of WST activities on Sea turtles. Sea turtles will be exposed to potential lethal or sublethal effects following ocean disposal of WST waste fluids or release of WST fluids or hydrocarbons from potential accidents, but no mitigation is identified. The WST activities will also lead to vessel strikes, noise, and other disturbances associated with various phases of their operations. Sea turtles may also be affected by bottom-disturbing activities that may occur under Alternative 3, but no mitigation measures are identified.

18) The EA acknowledges that WST activities will impact commercial and recreational fisheries, many of which provide important economic benefits to nearby coastal communities. The EA states that potential impacts due to preclusion from fishing areas due to interference with vessels transporting WST materials and equipment, due to anticipated localized closure of fisheries resulting from accidental release of WST fluids or hydrocarbons, due to reduced abundance of fishing resources as a result of exposure to accidental release of WST fluids or hydrocarbons, or due to routine disposal of WST waste fluids is likely but no economic and environmental mitigation measures for these important fiscal and species impacts are presently identified in the EA.

19) The EA makes only a brief passing reference to "Areas of Special Concern" and the document simply states that potential impacts to such areas can occur if water quality is affected, and that some biological resources will potentially be affected. The EA does not identify which "Areas of Special Concern" will experience impacts, does not note which species would be impacted, nor does the EA offer any mitigations whatsoever for such impacts.

20) The EA makes a cursory reference to WST impacts on recreation and tourism, both of which are

economic mainstays throughout the coastal communities adjacent to the Project Area. Economic and environmental mitigations must be offered for such potentially substantial socioeconomic impacts. The EA states that potential impacts on recreation and tourism can be anticipated if water quality is affected and use of recreational areas is affected by WST activities. Past experience in the Project Area has taught local communities that such economic and social impacts can be quite substantial, but no mitigations are offered in the EA.

21) The EA seems to accept the premise that the WST activities being envisioned within the Project Area will have Environmental Justice implications, including reduced use of coastal and offshore areas by minority and low-income populations following accidental release of WST fluids and waste fluids. Use of coastal and offshore areas by minority and low-income populations is a cornerstone priority of the California Coastal Act, and no mitigations for this crucial range of impacts are offered in the EA.

22) The EA states that the proposed action would not affect archaeological resources, except for undisclosed potential impacts from bottom-disturbing activities that may occur under Alternative 3. The fact remains that no serious research on the locations and extent of archeological resources in and adjacent to the Project Area has been done, but there is substantial evidence of early human use of this region, including the past utilization of geographic areas that are now submerged. The claim by the EA that the proposed action would not affect archaeological resources must be substantiated and evidence provided that this unfounded blanket statement is defensible, that peer-reviewed studies can be provided to back up this claim, and that mitigations suggested for such impacts will be effective. Formal government-to-government consultations with affected Tribal entities must be initiated by the responsible federal agency relative to any potential impacts to archeological resources and for other purposes.

23) Subsection ES.5 "Environmental Consequences" is inadequate, and makes the grandiose claim that because each of the four WSTs included in the proposed action have been used before, they are appropriate for continued use. This section ignores the obvious fact that WST activities have previously been conducted illicitly in waters off of the California coast, without the required notification of the California Coastal Commission, without notification of any other state agency, and with no notification provided to any impacted local government jurisdiction. Past inappropriate practices by the agency and the industry are no justification for proceeding with the same activity into the future. The continued evolution of WST practices has resulted in new chemical compounds being utilized and new multi-stage pressurizing techniques being applied, and yet industry continues to fail to fully disclose all chemicals used in WST activities on land or in the water. The routine discharge of unidentified chemical compounds into the water column off of Southern California, as proposed in the EA, is inappropriate.

24) Subsection ES.5.2 "Potential Releases from WST-Related Accidents" provides only vague descriptions of the types of accidents that may be reasonably expected to occur, fails to identify the specific chemicals that would be released, and does not provide any cleanup or mitigation strategy in the event of such releases.

25) Subsection ES.6 purports to discuss "Cumulative Impacts", but instead provides only the overly-generalized and incomplete Table ES-1 and the vague Table ES-2 as wholly inadequate evidence that cumulative impacts of WST activities and accidents have been considered in any serious way by the drafters of the EA. Baseline data, information on the types of impactful chemicals that could be released, relevant seasonal surface and subsurface ocean current trajectories, and reliable cleanup strategies must be included in any reasoned discussion of cumulative impacts. The EA is deficient with respect to each of these important issues.

26) The EA fails to disclose parameters for determining whether or not well casings and other well components have been designed to safely accommodate the increased pressures associated with the WST stimulation activities.

27) The EA fails to identify how BOEM/BSEE would determine whether platforms and wells have been designed for the extended life associated with continuing oil and gas production for the period during which WST activities are intended, and whether additional engineering studies must be completed and certified prior to allowing the anticipated longer platform life.

28) Activities such as WST trigger a regulatory threshold where an Application for Permit to Modify (APM) must be required of operators, at a minimum, and many of the proposed WST activities will require a federal consistency review under the Coastal Zone Management Act (CZMA). Any prior approved EP, DPP or DOCD will, in most cases, require revision or replacement and the EA makes no mention of how and when these steps will be accomplished. No indication appears in the EA of how the agencies and operators intend to complete and submit Supplemental OCS Plans, particularly those OCS Plans authorized after 1977. Amended and Supplemental OCS Plans will require a consistency review.

Thank you for this opportunity to submit comments on the "Draft Programmatic Environmental Assessment To Evaluate Potential Environmental Effects of Well Stimulation Treatments on the Pacific Outer Continental Shelf".

Sincerely,

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